



Navigation System Simulation Model

Start Date: Jun 2005

Projected

End Date: Sep 2008

Lead Researcher(s):

Mark W Lisney, IWR-Forward, Louisville KY

Problem Addressed:

The Waterways Analysis Model is currently the most procedurally developed lock simulation model used by the Corps. However, the WAM is limited in several regards. It is a difficult model to use, which is being addressed by another NETS project (WAM BPP). More importantly, the WAM is written in a proprietary language which makes it difficult to understand and revise; it is not well suited to analysis of a system of locks; it is not well suited for analysis of shipper and carrier behavior in reaction to disruptive lock closures; it is not well suited for analysis of various traffic management schemes; it does not include engineering reliability modules; and it cannot optimize navigation system investments and management actions.

Objective:

This effort will develop an entirely new system simulation and optimization model that builds upon the capabilities of WAM and addresses the shortcomings identified above. NaSS is intended to be the most advanced navigation system simulation tool available to the Corps and general public.

Benefits:

The work effort will lead to better decisions regarding navigation system improvements and management through the use of a model that better simulates real world operations and optimizes potential investments and traffic management actions.

Status:

In progress. Model prototyping is completed. In FY07 the team is focusing on further development of the Data Analyzer - Preprocessor, System Network Model, and Detailed Lock Model. The Genetic Algorithm Optimization module is scheduled for completion in May 2007.

Contract Data:

A1310; 130465,
W1010, W1030,
C3300

Progress:

[Paper by Mark Lisney, September 2005
\(43 KB, pdf\)](#)

[Design Document by Dr. Richard M. Males, Feb 5, 2006
\(457 KB, pdf\)](#)

[Report by Paul Schonfeld, Shaafulir Wang, Apr 17, 2006
\(494 KB, pdf\)](#)

[Design Document Review Comment by Design Document Reviewers, May 1, 2006
\(236 KB, pdf\)](#)

Products (Bookshelf/Toolbox):

[Report by Dr. Richard Males, Jul 12, 2006
\(787 KB, pdf\)](#)

[Report by Shaafulir Wang and Paul Schonfeld, Nov 7, 2006
\(596 KB, pdf\)](#)

[DD Comments and Responses by Various NaSS Team Members, Jul 27,2006 \(261 KB, pdf\)](#)

[Announcement by NETS Team, Feb 12,2007 \(15 KB, pdf\)](#)

[Report by Shaaulir Wang, Ning Yang, Paul Schonfeld, Jun 18,2007 \(677 KB, pdf\)](#)

Contact:

Mark W Lisney, IWR-Forward, Louisville KY Mark.Lisney@us.army.mil
Mark.Lisney@us.army.mil

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